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(FILE 'HOME' ENTERED AT 08:09:47 ON 21 JUN 2004)

INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUASCI, BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DISSABS, DDFB, DDFU, DGENE, DRUGB, DRUGMONOG2, ...' ENTERED AT 08:10:00 ON 21 JUN 2004

SEA HEXOKINASE OR GLUCOKINASE

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655	FILE AGRICOLA
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             5662   FILE SCISEARCH
                1   FILE SYNTHLINE
             2810   FILE TOXCENTER
             5253   FILE USPATFULL
              146   FILE USPAT2
                8   FILE VETB
               18   FILE VETU
              392   FILE WPIDS
                5   FILE WPIFV
              392   FILE WPINDEX
L1               QUE HEXOKINASE OR GLUCOKINASE
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     INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUASCI,
     BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA,
     CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DISSABS,
     DDFB, DDFU, DGENE, DRUGB, DRUGMONOG2, ...' ENTERED AT 08:11:14 ON 21 JUN
     2004

     FILE 'CAPLUS, MEDLINE, BIOSIS, EMBASE, SCISEARCH, USPATFULL' ENTERED AT
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L2          5195 S L1 AND (CDNA OR CLONE)
L3            18 S L2 AND (SUGAR NUCLEOTIDE ?SYNTHE?)
L4            18 DUP REM L3 (0 DUPLICATES REMOVED)
L5            35 S L2 AND (SUGAR NUCLEOTIDE)
L6            35 DUP REM L5 (0 DUPLICATES REMOVED)

     FILE 'CAPLUS, MEDLINE, BIOSIS, EMBASE, SCISEARCH' ENTERED AT 08:16:58 ON
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L7         40274 S L1
L8          1155 S L1 AND (CDNA OR CLONE)
L9             0 S L8 AND (SUGAR NUCLEOTIDE ?SYNTHE?)
L10            0 S L8 AND (SUGAR NUCLEOTIDE)
L11            0 S L8 AND AMMONIAGENES
L12            2 S L8 AND CORYNEBACTERIUM
L13            2 DUP REM L12 (0 DUPLICATES REMOVED)
L14            7 S L1 AND (SUGAR NUCLEOTIDE ?SYNTHE?)
L15            2 DUP REM L14 (5 DUPLICATES REMOVED)

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=> d l15 ibib ab 1-2

L15 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 1
ACCESSION NUMBER: 2003:119153 CAPLUS
DOCUMENT NUMBER: 138:334178
TITLE: Engineering of carbon distribution between glycolysis and **sugar nucleotide biosynthesis** in Lactococcus lactis
AUTHOR(S): Boels, Ingeborg C.; Klecrebezem, Michiel; de Vos, Willem M.
CORPORATE SOURCE: Wageningen Centre for Food Sciences, Wageningen, Neth.
SOURCE: Applied and Environmental Microbiology (2003), 69(2), 1129-1135
CODEN: AEMIDF; ISSN: 0099-2240
PUBLISHER: American Society for Microbiology
DOCUMENT TYPE: Journal
LANGUAGE: English
AB We describe the effects of modulating the activities of **glucokinase**, phosphofructokinase, and phosphoglucomutase on the branching point between sugar degradation and the biosynthesis of sugar nucleotides involved in the production of exopolysaccharide biosynthesis by Lactococcus lactis. This was realized by using a described isogenic L. lactis mutant with reduced enzyme activities or by controlled expression of the well-characterized genes for phosphoglucomutase or **glucokinase** from Escherichia coli or Bacillus subtilis, resp. The role of decreased metabolic flux was studied in L. lactis strains with decreased phosphofructokinase activities. The concomitant reduction of the activities of phosphofructokinase and other enzymes encoded by the las operon (lactate dehydrogenase and pyruvate kinase) resulted in significant changes in the concns. of sugar-phosphates. In contrast, a >25-fold overprodn. of **glucokinase** resulted in 7-fold-increased fructose-6-phosphate levels and 2-fold-reduced glucose-1-phosphate and glucose-6-phosphate levels. However, these increased sugar-phosphate concns. did not affect the levels of sugar nucleotides. Finally, an .apprx.100-fold overprodn. of phosphoglucomutase resulted in 5-fold-increased levels of both UDP-glucose and UDP-galactose. While the increased concns. of sugar-phosphates or sugar nucleotides did not significantly affect the production of exopolysaccharides, they demonstrate the metabolic flexibility of L. lactis.
REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 2 OF 2 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN DUPLICATE 2
ACCESSION NUMBER: 2000:113188 BIOSIS
DOCUMENT NUMBER: PREV200000113188
TITLE: **Hexokinase** activity alters sugar-nucleotide formation in maize root homogenates.
AUTHOR(S): Galina, Antonio [Reprint author]; Seixas da Silva, Wagner
CORPORATE SOURCE: Departamento de Bioquimica Medica, Instituto de Ciencias Biomedicas, Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, 21941-590, Brazil
SOURCE: Phytochemistry (Oxford), (Jan., 2000) Vol. 53, No. 1, pp. 29-37. print.
CODEN: PYTCAS. ISSN: 0031-9422.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 29 Mar 2000
Last Updated on STN: 3 Jan 2002
AB Two pools of **hexokinase** activities differing in sensitivity to ADP inhibition were characterised in maize roots. In order to evaluate how glucose utilisation could be affected by these **hexokinases**, glucose-6-P and NDP-5'-sugar levels were measured after a D-(U-14C)glucose

pulse in root extracts in the presence of 0 or 1 mM ADP. Analysis of radio-labelled activated sugars by paper chromatography revealed that: (1) without ADP, nearly 20% of the 14C appeared in NDP-5'-sugars; (2) 0.1 mM ADP inhibited 14C-NDP-5'-sugar formation by 85%; and (3) with 1 mM ADP, 14C- NDP-5'-sugars were undetectable, but substantial (14%) 14C accumulated as glucose-6-P. Mannoheptulose, a **hexokinase** inhibitor, blocked the NDP-5'-sugar formation, but did not modify the amount of 14C-glucose-6-P in root extracts either with or without ADP. The analysis of the **hexokinase** activities with 0.8 mM glucose in maize root extracts showed that: (1) mitochondrial **hexokinase** activity was totally inhibited by 30 mM mannoheptulose; and (2) the cytosolic **hexokinase** was inhibited by only 30%. These data suggest that NDP-5'-sugar synthesis is sensitive to ADP fluctuations and that mannoheptulose affects preferentially the mitochondrial-bound **hexokinase**, but the cytosolic form is less sensitive. We propose that the mitochondrial **hexokinase** is the main energy charge sensor in this pathway in maize.

L5 ANSWER 501 OF 512 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1972:55797 CAPLUS
DOCUMENT NUMBER: 76:55797
TITLE: Nucleoside diphosphate sugar **pyrophosphorylases** of Shigella flexneri and Escherichia **coli**
AUTHOR(S): Chojnacki, T.; Jankowski, W.; Janczura, Ewa
CORPORATE SOURCE: Inst. Biochem. Biophys., Pol. Acad. Sci., Warsaw, Pol.
SOURCE: Acta Biochimica Polonica (1971), 18(4), 347-51
CODEN: ABPLAF; ISSN: 0001-527X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The presence of nucleoside diphosphate sugar **pyrophosphorylases** (the EC 2.7.7. group of nucleotidyltransferases) **synthetizing** ADP-glucose, CDP-glucose, **GDP-glucose**, dTDP-glucose, and **UDP-glucose** was demonstrated in cell-free exts. from S. flexneri 2a. Partial sepn. of these enzymes was performed by gel filtration on Sephadex G-200. The elution vol. of individual enzymes in ext. of E. **coli** and S. flexneri were similar.

L4 ANSWER 12 OF 15 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1975:54002 CAPLUS
DOCUMENT NUMBER: 82:54002
TITLE: Uridine diphosphoglucose pyrophosphorylase activity and differentiation in the acellular slime mold Physarum polycephalum
AUTHOR(S): Kuehn, Glenn D.
CORPORATE SOURCE: Dep. Chem., New Mexico State Univ., Las Cruces, NM, USA
SOURCE: Journal of Bacteriology (1974), 120(3), 1151-7
CODEN: JOBAAY; ISSN: 0021-9193
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The specific activity of UTP:.alpha.-D-**glucose** 1-**phosphate uridyltransferase** (EC 2.7.7.9, I) increased up to 8-fold during spherule formation by P. polycephalum. The enzyme accumulated during the 1st 8-9 hr after initiation of spherule formation, declined to basal levels found in vegetative microplasmodia by 15 hr, and was undetectable in completed spherules. Specific activities for I in vegetative microplasmodia ranged from 15 to 30 nmol of **UDP-glucose** formed/min/mg of protein, whereas accumulated levels during spherule formation could attain a specific activity as high as 125 nmol of **UDP-glucose** formed/min/mg of protein. The scheduling and extent of accumulation was critically dependent on an early log-phase age of microplasmodia originally induced to form spherules. Spherule induction by 0.2 or 0.5 M mannitol delayed this schedule in a variable and unpredictable manner. Spherule-forming microplasmodia which have accumulated high levels of I spontaneously excreted the enzyme when transferred to salts medium contg. 0.2 or 0.5 M mannitol. The excreted enzyme was subsequently destroyed or inactivated. Studies with preferential inhibitors of macromol. **synthesis** indicated that accumulation of I required concomitant protein **synthesis** and prior RNA **synthesis**.

DR/TS

L5 ANSWER 510 OF 512 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1965:10242 CAPLUS
DOCUMENT NUMBER: 62:10242
ORIGINAL REFERENCE NO.: 62:1913f-h
TITLE: Control aspects of uridine 5'-diphosphate glucose and thymidine 5'-diphosphate [TDP] glucose **synthesis** by microbial enzymes
AUTHOR(S): Bernstein, R. L.; Robbins, Phillips W.
CORPORATE SOURCE: Massachusetts Inst. of Technol., Cambridge
SOURCE: Journal of Biological Chemistry (1965), 240(1), 391-7
CODEN: JBCHA3; ISSN: 0021-9258
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Thymidine 5'-diphosphate glucose **pyrophosphorylase** and uridine 5'-diphosphate glucose **pyrophosphorylase** were separable enzymes in the Escherichia-Salmonella group of organisms. The enzymes seem to be constitutive even under circumstances in which the end products are not utilized to an appreciable extent. Since this is the case, the inhibition of enzyme action by possible end products and analogs has been investigated. TDP-glucose **pyrophosphorylase** (I) is inhibited competitively by **UDP-glucose**. I is strongly inhibited by TDP-rhamnose, the nucleotide sugar end product of the reaction sequence that starts with TDP-glucose **pyrophosphorylase**. The **UDP -glucose pyrophosphorylase** of Escherichia **coli** is competitively inhibited both by TDP-glucose and TDP-rhamnose, while the same enzyme from yeast is inhibited only weakly by TDP-glucose.

L4 ANSWER 14 OF 15 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1971:445913 CAPLUS
DOCUMENT NUMBER: 75:45913
TITLE: Multiple molecular forms of uridine diphosphate glucose pyrophosphorylase from Salmonella typhimurium. II. Gentic determination of multiple forms
AUTHOR(S): Nakae, Taiji; Nikaido, Hiroshi
CORPORATE SOURCE: Biochem. Res. Lab., Massachusetts Gen. Hosp., Boston, MA, USA
SOURCE: Journal of Biological Chemistry (1971), 246(14), 4397-403
CODEN: JBCHA3; ISSN: 0021-9258
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Two genes were involved in the **synthesis** of multiple forms of **UDP-glucose** pyrophosphorylase (EC 2.7.7.9) in S. typhimurium. When one of them (galF) was deleted, all of the isozymic forms seen in the wild type ext. (Enzymes II, IIIa, and IIIb) disappeared, and a single new form of the enzyme (Enzyme IV) was **synthesized**. When the other gene (galU) mutated to a leaky defective state, not only was the activity of Enzyme IV greatly reduced in the galF deletion strain but also the activities of Enzymes II, IIIa, and IIIb were very much diminished or undetectable in the strain contg. the galF+ allele. Furthermore, strains contg. another mutation in the galU gene produced a thermolabile Enzyme II in the presence of the galF+ allele. These results are consistent with the hypothesis that galU is a structural gene producing a polypeptide which is present in all the isozymic forms of **UDP-glucose** pyrophosphorylase, and that the product specified by the galF gene modifies this polypeptide so that it is converted into Enzymes II, IIIa, and IIIb.

L4 ANSWER 9 OF 15 MEDLINE on STN
ACCESSION NUMBER: 85258602 MEDLINE
DOCUMENT NUMBER: 85258602 PubMed ID: 2991046
TITLE: Molecular cloning of a cDNA complementary to a **UDP -glucose** pyrophosphorylase mRNA of dictyostelium discoideum.
AUTHOR: Fishel B R; Ragheb J A; Rajkovic A; Haribabu B; Schweinfest C W; Dottin R P
CONTRACT NUMBER: GM07231 (NIGMS)
GM27310 (NIGMS)
SOURCE: DEVELOPMENTAL BIOLOGY, (1985 Aug) 110 (2) 369-81.
Journal code: 0372762. ISSN: 0012-1606.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198508
ENTRY DATE: Entered STN: 19900320
Last Updated on STN: 19980206
Entered Medline: 19850827

AB Uridine diphosphoglucose pyrophosphorylase (UTP: -alpha-D-**glucose -1-phosphate uridyltransferase**, EC 2.7.7.9) is an essential enzyme for normal development of Dictyostelium discoideum and its specific activity increases 3- to 10-fold by the later stages of development. Previous experiments have shown that additional forms of the enzyme appear concomitantly with this increase and that two uridine diphosphoglucose pyrophosphorylase (UDPGP) polypeptides are immunoprecipitated from the in vitro translation products of total cellular RNA at any stage of development (B. F. Fishel, R. E. Manrow and R. P. Dottin, 1982, Dev. Biol. 92, 175-187). Using an in vitro translation-immunoprecipitation assay of UDPGP mRNA, we show that an increase in the amount of translatable mRNA is correlated with the accumulation of enzyme during development. A cDNA bank was constructed from a mRNA population that had been enriched for UDPGP mRNA by size fractionation on sucrose gradients containing methylmercuric hydroxide (C. W. Schweinfest, R. W. Kwiatkowski, and R. P. Dottin, 1982, Proc. Natl. Acad. Sci. USA 79, 4997-5000). A 1.8-Kb cDNA complementary to a UDPGP mRNA was identified after screening the bank by hybridization selection and translation. Only the mRNA encoding the higher molecular weight in vitro translation product is hybrid selected by this cDNA. In hybrid-arrested translation experiments, the coding strand of this cDNA selectively inhibits the translation of only one of the two in vitro translation products. Therefore, there are two distinct UDPGP mRNAs.

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     (FILE 'HOME' ENTERED AT 13:10:24 ON 05 APR 2002)

     INDEX 'ADISALERTS, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUASCI,
     BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO,
CABA,
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     DDFU, DGENE, DRUGB, DRUGLAUNCH, DRUGMONOG2, ...' ENTERED AT 13:10:38 ON
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              21   FILE ESBIOBASE
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               5   FILE FSTA
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               SEA CORYNEBACTERIUM
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              375   FILE DDFU
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L2              QUE CORYNEBACTERIUM
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     FILE 'BIOSIS, CAPLUS, EMBASE, MEDLINE, SCISEARCH' ENTERED AT 13:12:44 ON
     05 APR 2002
L3           17 S L1 AND (SUGAR(W)NUCLEOTIDE OR NTP OR CTP)
L4            7 DUP REM L3 (10 DUPLICATES REMOVED)
L5           59 S L2 AND (SUGAR(W)NUCLEOTIDE OR NTP OR CTP)
L6           30 DUP REM L5 (29 DUPLICATES REMOVED)
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L6 ANSWER 22 OF 30 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1993:146291 CAPLUS
DOCUMENT NUMBER: 118:146291
TITLE: CMP-sialic acids manufacture with microbial cell extracts
INVENTOR(S): Kittelmann, Matthias; Ghisalba, Oreste; Klein, Teresa; Kragl, Udo; Wandrey, Christian Prof Dr
PATENT ASSIGNEE(S): Ciba-Geigy A.-G., Switz.; Forschungszentrum Juelich GmbH
SOURCE: Eur. Pat. Appl., 25 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 524143	A1	19930120	EP 1992-810522	19920708
EP 524143	B1	19971210		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, PT, SE				
AT 161051	E	19971215	AT 1992-810522	19920708
ES 2110481	T3	19980216	ES 1992-810522	19920708
CA 2073954	AA	19930118	CA 1992-2073954	19920715
AU 9220348	A1	19930121	AU 1992-20348	19920716
AU 664036	B2	19951102		
JP 05276973	A2	19931026	JP 1992-189647	19920716
IL 102527	A1	19960804	IL 1992-102527	19920716
US 5334514	A	19940802	US 1993-152269	19931112
PRIORITY APPLN. INFO.:			CH 1991-2119 A	19910717
			US 1992-915474 B1	19920716

AB CMP-sialic acids are prepd. by incubation of **CTP** and sialic acids with microbial cell exts. contg. cytidine-5'-monophospho-N-acetylneuraminic acid synthetase activity. Escherichia coli was cultured and an ext. was prepd. which was used to prep. CMP-Neu5Ac from **CTP** and N-acetylneuraminic acid (Neu5Ac). Methods for optimizing E. coli growth and enzyme yield and for further purifn. of the enzyme were described. An E. coli mutant with higher yields of the enzyme was

L6 ANSWER 21 OF 30 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1993:515502 CAPLUS
DOCUMENT NUMBER: 119:115502
TITLE: Process for producing cytidine diphosphate choline from orotic acid and choline or phosphorylcholine with microorganisms
INVENTOR(S): Maruyama, Akihiko; Fujio, Tatsuro; Teshiba, Sadao
PATENT ASSIGNEE(S): Kyowa Hakko Kogyo Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 16 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 553821	A1	19930804	EP 1993-101323	19930128
EP 553821	B1	19970319		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
JP 05276974	A2	19931026	JP 1993-11985	19930127
AT 150487	E	19970415	AT 1993-101323	19930128
ES 2100376	T3	19970616	ES 1993-101323	19930128
CN 1074938	A	19930804	CN 1993-100917	19930129
CN 1060215	B	20010103		

PRIORITY APPLN. INFO.: JP 1992-14858 A 19920130

AB The title process is described. Thus, plasmid pCKG55 contg. the E. coli cytidine-5'-triphosphate synthetase gene pyrG, and the S. cerevisiae genes for cholinephosphate cytidylyltransferase and choline kinase, was prepd. E. coli was transformed with this plasmid. **Corynebacterium** ammoniagenes, which converts orotic acid to uridine-5'-triphosphate, was cultured with this E. coli transformant, orotic acid, and choline to prep.